THE UNIVERSITY of NEW MEXICO

Department of Safety and Risk Services (SRS)
MSC07 4100
1 University of New Mexico
Albuquerque, NM 87131-0001
Phone: (505)277-2753 Fax: (505)277-9006
srs.unm.edu

October 12, 2016

Cale J. Kanack
Environmental Health Specialist I
Air Quality Division
Environmental Health Department
City of Albuquerque

Re: Construction Permit Applications for University of New Mexico, Economics Building

Dear Mr. Kanack

Enclosed please find a Construction Permit application packet for the proposed installation of a new standby emergency generator at the University of New Mexico. The new generator is powered by a new diesel engine with a power rating of 69 hp, and will be installed at the Economics Building (Building 57). It will replace the old, existing Non-NSPS emergency generator at this location, and is intended to provide backup power. An EPA Certificate of Conformity for the new unit is provided to demonstrate NSPS compliance.

A check for the application review fees, payable to the City of Albuquerque is also enclosed.

The project to replace this generator is time sensitive, and the University would appreciate any efforts to quickly process these applications.

Should you have any questions, please do not hesitate to contact me at 505-277-2766.

Sincerely,

Chemanji Shu-Nyamboli

Environmental Health Manager

cc: David A. Penasa, UNM Facilities Engineering Manager
Israel Tavarez, Environmental Health Manager, Air Quality Division, City of Albuquerque

Albuquerque Environmental Health Department - Air Quality Program
Please mail this application to **P.O. Box 1293, Albuquerque, NM 87103**
or hand deliver between 8:00am - 5:00pm Monday - Friday to:
3rd Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103
(505) 768 – 1972 aqd@cabq.gov (505) 768 - 1977 (Fax)

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

Clearly handwrite or type **Corporate Information** **Submittal Date:** 10/12/16

1. Company Name: University of New Mexico _____ 2. Street Address 1800 Roma Ave, NE _____ Zip 87131 __

3. Company City Albuquerque_____ 4. Company State_NM__ 5. Company Phone _505-277-2766____ 6. Company Fax _____

7. Company Mailing Address:1801 Tucker Ave, NE _____ Zip: 87131

8. Company Contact and Title: Che Shu-Nyamboli, Environmental Health Manager_ 9. Phone__505-277-2766__10. E-mail _cshu@unm.edu

Stationary Source (Facility) Information: **Provide a plot plan (legal description/drawing of facility property) with overlay sketch of facility processes; Location of emission points; Pollutant type and distances to property boundaries]**

1. Facility Name: Economics Building (Building 57)____2. Street Address__915 Roma Ave NE___

3. City___Albuquerque___ 4. State_NM___ 5. Facility Phone (505) _277-6798__ 6. Facility E-mail: cshu@unm.edu__

7. Facility Mailing Address (Local)_1801 Tucker Rd NE___Zip_87131__

8. Latitude - Longitude or UTM Coordinates of Facility_____352.1 East 3883.2 North_____

9. Facility Contact and Title same as company contact and title 10. Phone ___11.E-mail __

General Operation Information (if any further information request does not pertain to your facility, write N/A on the line or in the box)

1. Facility Type (description of your facility operations)_Emergency Generator

2. Standard Industrial Classification (SIC 4 digit #) 8221 3. North American Industry Classification System (NAICS Code #)_611310___

4. Is facility currently operating in Bernalillo County. Yes If yes, date of original construction 2/14/1984_If no, planned startup is___/___/___

5. Is facility permanent Yes If no, give dates for requested temporary operation - from _____/_____/_____ through ____/_____/_____

6. Is facility process equipment new Yes If no, give actual or estimated manufacture or installation dates in the Process Equipment Table

7. Is application for a modification, expansion, or reconstruction (altering process, or adding, or replacing process equipment, etc.) to an existing facility which will result in a change in emissions_Yes__ If yes, give the manufacture date of modified, added, or replacement equipment in the Process Equipment Table modification date column, or the operation changes to existing process/equipment which cause an emission increase

8. Is facility operation (circle one)? [Continuous Intermittent Batch]

9. Estimated % of production Jan-Mar_25__ Apr-Jun_25__ Jul-Sep_25__ Oct-Dec_25___

10. Current or requested operating times of facility____ hrs/day___ days/wk____ wks/mo____ mos/yr 11. Business hrs_____ am/pm to _____am/pm 200 hrs/yr

12. Will there be special or seasonal operating times other than shown above__No__ If yes, explain_____

13. Raw materials processed____Diesel_____14. Saleable item(s) produced_____

Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Authority-to-Construct Permits (20.11.41 NMAC)

15. Permitting Action Being Requested

X New Permit ☐ Permit Modification ☐ Technical Permit Revision ☐ Administrative Permit Revision

Current Permit #: _____ Current Permit #: _____ Current Permit #: _____

PROCESS EQUIPMENT TABLE

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.)

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C-222	7/96	7/97	N/A	250 Hp - HR. ~~YR.~~	Diesel
Example 2. Spray Gun	HVLP Systems	Spray-N-Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal. - HR. ~~YR.~~	Electric Compressor
1. Emergency Generator	Caterpillar	C4.4	TBD	TBD	TBD	N/A	69 Hp	Diesel
2.							HR. YR.	
3.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.)__**Manufacture's Data**_____ Submit information for each unit as an attachment

EXEMPTED SOURCES AND EXEMPTED ACTIVITES

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.)

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft^3;lbs; tons;yd^3;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C-222	7/96	7/97	N/A	250 Hp - HR. ~~YR.~~	Diesel
Example 2. Spray Gun	HVLP Systems	Spray-N-Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal. - HR. ~~YR.~~	Electric Compressor
							HR. YR.	
2.							HR. YR.	
3.							HR. YR.	

1. Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.)_____ Submit information for each unit as an attachment

UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8,760 hrs)

Process Equipment Unit*		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx+NMHC)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determination of Emissions (AP-42, Material balance, field tests, manufacturers' data, etc.)
Example I. Generator	1.	9.1 lbs/hr	27.7 lbs/hr	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	AP-42
	1a.	39.9 tons/yr	121.3 tons/yr	5.7 tons/yr	2.2 tons/yr	8.8 tons/yr	
1. Generator	1.	0.56 lbs/hr	0.53 lbs/hr	lbs/hr	0.14 lbs/hr	0.05 lbs/hr	AP-42
	1a.	2.46 tons/yr	2.32 tons/yr	tons/yr	0.61 tons/yr	0.19 tons/yr	
2.	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	
3.	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	

*** If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet.**

*** If all of these process units, individually and in combination, have an uncontrolled emission less than or equal to (≤) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.**

Note: If your source does not require a registration or permit, based on above pollutant emissions, complete the remainder of this application to determine if a registration or permit would be required for any Toxic or Hazardous air pollutants used at your facility.

Copy this page if additional space is needed for either table (begin numbering with 4., 5., etc.)

CONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Based on current operations with emission controls OR requested operations with emission controls)

Process Equipment Units listed on this Table should match up to the same numbered line and Unit as listed on Uncontrolled Table (pg.2)

Process Equipment Unit		Carbon Monoxide (CO)	Oxides of Nitrogen (NOx+NMHC)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Equipment	% Efficiency
I. Example Generator	1.	9.1 lbs/hr	27.7 lbs/hr	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	Operating Hours	N/A
	1a.	18.2 tons/yr	55.4 tons/yr	2.6 tons/yr	1.0 tons/yr	4.0 tons/yr		
1.	1.	0.56 lbs/hr	0.53 lbs/hr	lbs/hr	0.14 lbs/hr	0.05 lbs/hr	Operating Hours	N/A
	1a.	0.06 tons/yr	0.05 tons/yr	tons/yr	0.01 tons/yr	0.004 tons/yr		
2.	2.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	2a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
3.	3.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr		
	3a.	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.)
   Submit information for each unit as an attachment _____

2. Explain and give estimated amounts of any Fugitive Emissions associated with facility processes _____

_____

Economics

Uncontrolled Emissions

Engine Rating (hp)	69				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	3.7	255.3	0.562839486	2236428	2.4600708
NOx + NMHC	3.5	241.5	0.53241573	2115540	2.327094
SOx	0.93	64.17	0.141470465	562129.2	0.61834212
PM	0.3	20.7	0.045635634	181332	0.1994652

Controlled Emissions

Engine Rating (hp)	69				
	(g/hp-hr)	g/hr	Ibs/hr	g/yr	TPY
CO	3.7	255.3	0.562839486	51060	0.056166
NOx + NMHC	3.5	241.5	0.53241573	48300	0.05313
SOx	0.93	64.17	0.141470465	12834	0.0141174
PM	0.3	20.7	0.045635634	4140	0.004554

Federal New Source Performance Standards (NSPS) for Stationary EMERGENCY Diesel Engines (40CFR 60.4202 & 60.4205) in Grams Per Horsepower Hour (g/hp-hr) for Engines with a displacement of < 10 Liters Per Cylinder

Horsepower / kW	Tier (CFR Section)	Year Of Manufacture	CO (g/hp-hr)	NOx[1] (g/hp-hr)	NMHC[1] (g/hp-hr)	NOx + NMHC[1] (g/hp-hr)	SOx[2] (g/hp-hr)	Particulate Matter (PM) (g/hp-hr)	Notes
< 11 Hp < 8 kW	1 (60.4205)	Pre 2007[3]	6.0			7.8	0.93*	0.75	* Use AP-42 Section 3.3 SOx factors if <600Hp and Section 3.4 if >600Hp, as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
	2 (60.4202) - (89.112)	2007	6.0			5.6	0.93*	0.6	
	4 (60.4202)	2008 +	6.0			5.6	0.93*	0.3	
≥ 11 Hp < 25 Hp	1 (60.4205)	Pre 2007[3]	4.9			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.9			5.6	0.93*	0.6	
≥ 8 kW < 19 kW	4 (60.4202)	2008 +	4.9			5.6	0.93*	0.3	
≥ 25 Hp < 50 Hp	1 (60.4205)	Pre 2007[3]	4.1			7.1	0.93*	0.6	
	2 (60.4202) - (89.112)	2007	4.1			5.6	0.93*	0.45	
≥ 19 kW < 37 kW	4 (60.4202)	2008 +	4.1			5.6	0.93*	0.22	
≥ 50 Hp < 100 Hp	1 (60.4205)	Pre 2007[3]	3.03**	6.9	1.12**		0.93*	1.0**	** Use AP-42 Section 3.3 factors for CO, NMHC, and PM as shown on this table, or manufacturer's factors. Manufacturer's factors shall be used when larger than AP-42 factors.
	2 (60.4202) - (89.112)	2007	3.7			5.6	0.93*	0.3	
≥ 37 kW < 75 kW	3 (60.4202) - (89.112)	2008 +	3.7			3.5	0.93*	0.3	
≥ 100 Hp < 175 Hp	1 (60.4205)	Pre 2007[3]	3.03**	6.9	1.12**		0.93*	1.0**	
≥ 75 kW < 130 kW	3 (60.4202) - (89.112)	2007 +	3.7			3.0	0.93*	0.22	
≥ 175 Hp ≤ 750 Hp	1 (60.4205)	Pre 2007[3]	8.5	6.9	1.0		0.93*for < 600Hp or 3.67* for > 600Hp	0.4	
≥ 130 kW ≤ 560 kW	3 (60.4202) - (89.112)	2007 +	2.6			3.0		0.15	
> 750 Hp	1 (60.4205)	Pre 2007[3]	8.5	6.9	1.0			0.4	
	3 (60.4202) - (89.112)	2007***	2.6			4.8	3.67	0.15	
> 560 kW		*** 2007 – 2010 Model Year Engines > 3,000 Hp shall meet the Pre 2007 standards and beginning with the 2011 model year, Engines > 3,000 Hp shall meet the 2007 standards							

[1] When an emission factor is given for combined NOx + NMHC, individual emission factors for NOx and NMHC must be obtained from the manufacturer.

[2] SOx emission factors shall be based on AP-42 Section 3.3 for engines less than (<) 600 Hp and Section 3.4 for engines greater than (>) 600 Hp, or manufacturer's factors since SOx emission standards were not established for non-road diesel engine rulemaking. Manufacturer's factors shall be used when larger than the AP-42 factors. For engines > 600 Hp, the "S" multiplier is 0.05 (5%) if calculating SOx to reflect the current low sulfur diesel fuel standard of 500 ppm. Percent sulfur in diesel fuel transitions to Ultra Low Sulfur Diesel (15 ppm) by October 2010. For engines operated after October 2010, with a year of manufacture of 2010 or later, the "S" multiplier is 0.0015 (0.15%) if calculating SOx to reflect the proposed new standard.

[3] Pre 2007 means each stationary Compression Ignition Internal Combustion Engine (CI ICE) whose construction, modification or reconstruction commenced after July 11, 2005. The date of construction is the date the engine is ordered by the owner or operator. Stationary CI ICE manufactured prior to April 1, 2006, that are not fire pump engines are not subject to NSPS, unless the engines are modified or reconstructed after July 11, 2005. A modified or reconstructed CI ICE must meet the emission standards for the model year in which the engine was originally new, not the year the engine is modified or reconstructed (Preamble language – Section II. E).

**TOXIC EMISSIONS

VOLATILE, HAZARDOUS, & VOLATILE HAZARDOUS AIR POLLUTANT EMISSION TABLE

Product Categories (Coatings, Solvents, Thinners, etc.)	Volatile Organic Compound (VOC), Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service Number (CAS) Of VOC, HAP, Or VHAP From Representative As Purchased Product	VOC, HAP, Or VHAP Concentration Of Representative As Purchased Product (pounds/gallon, or %)	1. How were Concentrations Determined (CPDS, MSDS, etc.)	Total Product Purchases For Category	(-)	Quantity Of Product Recovered & Disposed For Category	(=)	Total Product Usage For Category
EXAMPLE 1. Cleaning Solvents	TOLUENE	108883	70%	PRODUCT LABEL	lbs/yr 200 gal/yr	(-)	lbs/yr 50 gal/yr	(=)	lbs/yr 150 gal/yr
1.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
2.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr
3.					lbs/yr gal/yr	(-)	lbs/yr gal/yr	(=)	lbs/yr gal/yr

1. Basis for percent (%) determinations (Certified Product Data Sheets, Material Safety Data Sheets, etc.). Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category.

****NOTE:** **A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, IF THE SOURCE MEETS THE REQUIREMENTS OF PART 41.**

MATERIAL AND FUEL STORAGE TABLE

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 4., 5., etc.)

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres,etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff.
Example 1. Tank	diesel fuel	5,000 gal.	Below	welded/ brown	3/93	3000gal HR. ~~YR.~~	500 gal. - HR. ~~YR.~~	N/A Psia	N/A	N/A	N/A
Example 2. Barrels	Solvent	55 gal Drum	Above - in storage room	welded/green	N/A	N/A HR. YR.	N/A HR. YR.	N/A Psia	N/A	N/A	N/A
1.						gal HR. YR.	HR. YR.	Psia			
2.						HR. YR.	HR. YR.	Psia			
3.						HR. YR.	HR. YR.	Psia			

1. Basis for Loading/Offloading Rate (Manufacturers data, Field Observation/Test, etc.)_____
Submit information for each unit as an attachment.

2. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.)_____
Submit information for each unit as an attachment.

STACK AND EMISSION MEASUREMENT TABLE

If any equipment from the Process Equipment Table (Page 2) is also listed in this Stack Table, use the same numbered line for the Process Equipment unit on both Tables to show the association between the Process Equipment and it's Stack. Copy this table if additional space is needed (begin numbering with 4., 5., etc.).

Process Equipment	Pollutant (CO,NOx,TSP, Toluene,etc)	Control Equipment	Control Efficiency	Stack Height & Diameter in feet	Stack Temp.	Stack Velocity & Exit Direction	Emission Measurement Equipment Type	Range-Sensitivity-Accuracy-
Example 1. Generator	CO, NOx, TSP, SO_2, NMHC	N/A	N/A	18 ft. - H 0.8 ft. - D	225 ^{0}F	6,000 ft^3/min - V Exit - upward	N/A	N/A
Example 2. Spray Gun	TSP, xylene, toluene, MIBK	Spray Booth	99% for TSP	9 ft. - H 0.5 ft. -D	ambient	10,000 ft^3/min - V Exit - horizontal	N/A	N/A
Emergency Generator	CO, TSP, SOx, NOx+NMHC	N/A	N/A		1060 F	483.8 ft3/min – V Exit - upward	N/A	N/A
2.								
3.								

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment

ADDITIONAL COMMENTS OR INFORMATION

I, the undersigned, a responsible officer of the applicant company, certify that to the best of my knowledge, the information stated on this application, together with associated drawings, specifications, and other data, give a true and complete representation of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I also understand that any significant omissions, errors, or misrepresentations in these data will be cause for revocation of part or all of the resulting registration or permit.

Signed this 3 day of 10, 20 16

David W. Harris
Print Name

Executive Vice President for Administration, COO, CFO
Print Title

Signature

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Review Fee Instructions

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

1. be delivered in person to the Albuquerque Environmental Health Department, 3rd floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,

2. mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.

City of Albuquerque

Environmental Health Department
Air Quality Program
Permit Application Review Fee Checklist

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

I. COMPANY INFORMATION:

Company Name	University of New Mexico	
Company Address	1800 Roma Ave NE Albuquerque NM 87131	
Facility Name	Economics Building (Bldg. 57)	
Facility Address	915 Roma Ave NE Albuquerque NM 87131	
Contact Person	Chemanji Shu-Nyamboli	
Contact Person Phone Number	505-277-2766	
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	**Yes**	**No**
If yes, what is the permit number associated with this modification?	**Permit # 3255**	
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)	**Yes**	**No**

II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	$ 533.00	2401
	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,067.00	2301
	Not Applicable	*See Sections Below*	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
X	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$ 800.00	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,600.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,200.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,800.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,399.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$7,999.00	2307
	Not Applicable	*See Section Above*	
Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
X	40 CFR 60 - "New Source Performance Standards" (NSPS)	$ 1,067.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,067.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,067.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,666.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,333.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,333.00	2313
	Not Applicable	*Not Applicable*	

III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the permit application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	$ 1,067.00	2321
X	*Not Applicable*	*See Sections Below*	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	$ 800.00	2322
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	$ 1,600.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	$ 3,200.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	$ 4,800.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	$ 6,399.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	$7,999.00	2327
	Not Applicable	*See Section Above*	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	$ 5,333.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	$ 5,333.00	2334
X	*Not Applicable*	*Not Applicable*	
Federal Program Review Fees (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	$ 1,067.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	$ 1,067.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	$ 1,067.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	$ 10,666.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	$ 5,333.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	$ 5,333.00	2333
X	*Not Applicable*	*Not Applicable*	

IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:

If the permit application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
	Administrative Revisions	$ 250.00	2340
	Technical Revisions	$ 500.00	2341
X	*Not Applicable*	*See Sections II, III or V*	

V. PORTABLE STATIONARY SOURCE RELOCATION FEES:

If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
	No New Air Dispersion Modeling Required	$ 500.00	2501
	New Air Dispersion Modeling Required	$ 750.00	2502
X	*Not Applicable*	*See Sections II, III or V*	

VI. Please submit a check or money order in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	$1904.00
Section III Total	$
Section IV Total	$
Section V Total	$
Total Application Review Fee	**$1904.00**

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this 3 **day of** 10 **20_16**

David W. Harris — **Print Name**

Executive VP for Administration, COO, CFO — **Print Title**

Signature

Definition of Qualified Small Business as defined in 20.11.2 NMAC:
"Qualified small business" means a business that meets all of the following requirements:

(1) a business that has 100 or fewer employees;
(2) a small business concern as defined by the federal Small Business Act;
(3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
(4) a source that is not a major source or major stationary source.

Note: Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents ($0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents ($0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.

City of Albuquerque

Environmental Health Department
Air Quality Program

Permit Application Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to ruling a submitted application complete each application submitted shall contain the required items listed below. **This checklist must be returned with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

All applicants shall:

1. Fill out and submit the *Pre-permit Application Meeting Request* form
   a. ☑ Attach a copy to this application

2. Attend the pre-permit application meeting
   a. ☑ Attach a copy of the completed *Pre-permit Application Meeting Checklist* to this application

3. Provide public notice to the appropriate parties
   a. ☑ Attach a copy of the completed *Notice of Intent to Construct* form to this form
      i. Neighborhood Association(s): Campus NA, Coalition of Neighborhood Associations, District 6, Nob Hill NA, North Campus NA, Silver Hill NA, Spruce Park NA, Summit Park NA, Sycamore NA
      ii. Coalition(s): _____

   b. ☑ Attach a copy of the completed *Public Sign Notice Guideline* form

4. Fill out and submit the *Permit Application*. All applications shall:

   A. ☑ be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.

   B. ☑ at the time of application, include documentary proof that all applicable permit application review fees have been paid as required by 20 NMAC 11.02. Please refer to the attached permit application worksheet.

   C. ☑ contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.

D. ☑ contain the name, address, and phone number of a person to contact regarding questions about the facility.

E. ☑ indicate the date the application was completed and submitted

F. ☑ contain the company name, which identifies this particular site.

G. ☑ contain a written description of the facility and/or modification including all operations affecting air emissions.

H. ☑ contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.

I. ☑ provide sufficient information to describe the quantities and nature of any regulated air contaminant (including any amount of a hazardous air pollutant) that the source will emit during:

- Normal operation
- Maximum operation
- Abnormal emissions from malfunction, start-up and shutdown

J. ☑ include anticipated operational needs to allow for reasonable operational scenarios to avoid delays from needing additional permitting in the future.

K. ☐ contain a map, such as a 7.5-minute USGS topographic quadrangle, showing the exact location of the source; and include physical address of the proposed source.

L. ☑ contain an aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation, or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the department in writing.

M. ☑ contain the UTM zone and UTM coordinates.

N. ☑ include the four digit Standard Industrialized Code (SIC) and the North American Industrial Classification System (NAICS).

O. ☑ contain the types and **potential emission rate** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

P. ☑ contain the types and **controlled** amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

Q. ☑ contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).

R. ☑ contain all calculations used to estimate **potential emission rate** and **controlled** emissions.

S. ☑ contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).

T. ☑ contain fuel data for each existing and/or proposed piece of fuel burning equipment.

U. ☐ contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification. N/A

V. ☑ contain the stack and exhaust gas parameters for all existing and proposed emission stacks.

W. ☐ provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions. N/A

X. ☐ contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown. N/A

Y. ☐ contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points. N/A

Z. ☐ contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations. N/A

AA. ☐ contain description of the equipment or methods proposed by the applicant to be used for emission measurement. N/A

BB. ☑ be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.

Richard J. Berry, Mayor

Environmental Health Department

Air Quality Program

Interoffice Memorandum

Mary Lou Leonard, Director

TO: MIKE BUCHANAN

FROM: CALE KANACK, ENVIRONMENTAL HEALTH SPECIALIST

SUBJECT: DETERMINATION OF NEIGHBORHOOD ASSOCIATIONS AND COALITIONS WITHIN 0.5 MILES OF 800 YALE BLVD NE, ALBUQUERQUE, NM 87106

DATE: 9/16/2016

DETERMINATION:

On 9/16/2016, I used the City of Albuquerque Zoning Advanced Map Viewer (http://sharepoint.cabq.gov/gis) to review which City of Albuquerque Neighborhood Associations (NAs) and Neighborhood Coalitions (NCs) are located within 0.5 miles of the UNM Zimmerman Library located at 800 Yale Blvd NE, Albuquerque, NM 87106 in Bernalillo County.

I then used the City of Albuquerque Office of Neighborhood Coordination Monthly Neighborhood Association List dated September 1, 2016 to determine the contact information for each NA and NC populated by the Zoning Advanced Map Viewer.

Duplicates have been deleted. Contact information is as follows:

COA Association or Coalition	Name	Email or Mailing Address
Campus NA	Ed Blandford	edblandford@gmail.com
Campus NA	Sara Osborne	saralosborne@gmail.com
Campus NA	NA Email	campus.neighborhood.assoc@gmail.com
Coalition of NAs, District 6	Nancy Bearce	nancymbearce@gmail.com
Coalition of NAs, District 6	Gina Dennis	ginadennis@relerience.com
Nob Hill NA	Ron Halbgewachs	ronhalbgewachs@peoplepc.com
Nob Hill NA	Shani Madden	shanikm@me.com
North Campus NA	Julianna Koob	koobjulie@yahoo.com
North Campus NA	Sandra Penn	sandra.penn@gmail.com
Silver Hill NA	James Montalbano	ja.montalbano@comcast.net
Silver Hill NA	Elizabeth Doak	1606 Silver Ave SE Albuquerque, NM 87106
Spruce Park NA	Peter Feibelman	1401 Sigma Chi Rd NE Albuquerque, NM 87106
Spruce Park NA	Alan Paxton	paxtona@swcp.com
Spruce Park NA	NA Email	spnassociation@gmail.com
Summit Park NA	Daniel Jones	danjones1@hotmail.com
Summit Park NA	Fran A'Hern Smith	franahernsmith@gmail.com
Sycamore NA	Peter Schillke	pschillke@gmail.com

Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
Air Quality Program
P.O. Box 1293
Room 3047
Albuquerque, NM 87103

Name:	**Mike Buchanan/Kyle Duran**
Company/Organization:	The University of New Mexico
Point of Contact: **(phone number and email):** **Preferred form of contact (circle one):** Phone E-mail	Phone: 505-277-2766 Email: mbuchanan85@unm.edu CC: kyled10@unm.edu
Preferred meeting date/times:	Tuesday, June 14th 2016/1:00pm to 5:00pm
Description of Project:	Permitting generators at UNM Campus for three separate units; and process to get them permitted.

City of Albuquerque

Environmental Health Department
Air Quality Program

Pre-Permit Application Meeting Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to submitting an application, the applicant shall contact the department in writing and request a pre-application meeting for information regarding the contents of the application and the application process. This checklist is provided to aid the applicant and **a copy must be submitted with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Chemanji Shu- Nyamboli
Contact: 1801 Tucker Rd NE Albuquerque NM 87131
Company/Business: University of New Mexico

Fill out and submit a Pre-Permit Application Meeting Request form
⇒ Available online at http://www.cabq.gov/airquality

Emission Factors and Control Efficiencies
Notes:

Air Dispersion modeling guidelines and protocol
Notes:

None Required.

Department Policies
Notes:
Complete application forms, checklists and submit with application review fees.

Air quality permit fees
Notes: Include payment of permit fees with application.

Ver. 11/13

Public notice requirements

- Replacement Part 41 Implementation
  - *20.11.41.*13 B. Applicant's public notice requirements
    - Providing public notice to neighborhood association/coalitions
      - Neighborhood association:_____
      - Coalition: _____

      Notes:

Obtained CoA Association list from Cale Kanack at City of Albuquerque, for public notice requirement.

    - Posting and maintaining a weather-proof sign

      Notes:

Regulatory timelines

- 30 days to rule application complete
- 90 days to issue completed permit
- Additional time allotted if there is significant public interest and/or a significant air quality issue
  - Public Information Hearing
  - Complex permitting action

Notes:

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Section
Phone: (505) 768-1972 Email: aqd@cabq.gov

Notice of Intent to Construct

Under 20.11.41.13B NMAC, the owner/operator is required to *provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are with-in one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located* if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC – Construction Permits. **A copy of this form must be included with the application.**

Applicant's Name and Address: University of New Mexico, 1800 Roma Ave.

Owner / Operator's Name and Address: UNM, 1800 Roma Ave.

Actual or Estimated Date the Application will be submitted to the Department: October 15th, 2016

Exact Location of the Source or Proposed Source: 1915 Roma Ave NE

Description of the Source: Emergency Generator for backup power at Economics Building.

Nature of the Business: Higher Education

Process or Change for which the permit is requested: New Permit. Replacing old, existing generators with new ones.

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Initial Construction Permit

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	0.56	2.46
NOx	0.53	2.32
SO2	0.14	0.61
VOC		
TSP	0.05	0.19
PM10		
PM2.5		
VHAP		

Net Changes In Emissions

(Only for permit Modifications or Technical Revisions)

	lbs/hr	tpy	Estimated Total TPY
CO	+/-	+/-	
NOx	+/-	+/-	
SO2	+/-	+/-	
VOC	+/-	+/-	
TSP	+/-	+/-	
PM10	+/-	+/-	
PM2.5	+/-	+/-	
VHAP	+/-	+/-	

Maximum Operating Schedule: 200hrs/yr

Normal Operating Schedule: ~30 minutes per month

Current Contact Information for Comments and Inquires:

Name: Mike Buchanan
Address: 1801 Tucker Ave. NE
Phone Number: 505-277-3377

Ver.11/13

E-Mail Address:

If you have any comments about the construction or operation of the above facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager

Stationary Source Permitting

Albuquerque Environmental Health Department

Air Quality Program

PO Box 1293

Albuquerque, New Mexico 87103

(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published in the legal section of the Albuquerque Journal and mailed to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.

City of Albuquerque

Environmental Health Department
Air Quality Program

Public Notice Sign Guidelines

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. *Prior to submitting an application, the applicant shall post and maintain a weather-proof sign provided by the department. The applicant shall keep the sign posted until the department takes final action on the permit application; if an applicant can establish to the department's satisfaction that the applicant is prohibited by law from posting, at either location required, the department may waive the posting requirement and may impose different notification requirements.* **A copy of this form must be submitted with your application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Economics Building
Contact: Michael Buchanan / Che Nyamboti
Company/Business: University of New Mexico

☑ The sign must be posted at the more visible of either the proposed or existing facility entrance (or, if approved in advance and in writing by the department, at another location on the property that is accessible to the public)

☑ The sign shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times.

☑ The lower edge of the sign board should be mounted a minimum of 2' above the existing ground surface to facilitate ease of viewing

☑ Attach a picture of the completed, properly posted sign to this document

☐ **Check here if the department has waived the sign posting requirement.**
Alternative public notice details:

Ver. 11/13


PROPOSED AIR QUALITY CONSTRUCTION PERMIT
1. Applicant's Name: Economics Building Address: 915 Roma Ave NE
Owner or Operator's Name: University of New Mexico
Owner or Operator's Address: 1800 Roma Ave
Actual or Estimated Date the Application will be Submitted to the Department:
2. Exact Location of the Source or Proposed Source: 915 Roma Ave NE
3. Description of the Source: Emergency Generator
Nature of the Business: Higher Education
Process or Change for which the permit is being requested: New Permit Replacing existing generator
Initial Construction Permit
Net Changes in Emissions
CO 0.56 0.06
NOx 0.53 0.05
SO2 0.14 0.01
TSP 0.05 0.004
4. Maximum Operating Schedule: 200 hr/yr
Normal Operating Schedule: 30 min/mo
5. Current Contact Information for Comments and Inquires:
Name: Che Nyamboli
Address: 1801 Baker Ave
Phone Number: (505) 277-2746
THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION
PROPOSED AIR QUALITY CONSTRUCTION PERMIT
1. Applicant's Name: Zimmerman Library Address: 1900 Roma Ave
Owner or Operator's Name: University of New Mexico
Owner or Operator's Address: 1900 Roma Ave NE
Exact Location of the Source or Proposed Source: 1900 Roma Ave
Description of the Source: Emergency Generator
Nature of the Business: Higher Education
PROPOSED AIR QUALITY CONSTRUCTION PERMIT

PROPOSED AIR QUALITY CONSTRUCTION PERMIT

1. Applicant's Name: Economics Building Address: 915 Roma Ave NE
   Owner or Operator's Name: University of New Mexico
   Owner or Operator's Address: 1800 Roma Ave
   Actual or Estimated Date the Application will be Submitted to the Department: _____
2. Exact Location of the Source or Proposed Source: 915 Roma Ave NE
3. Description of the Source: Emergency Generator
   Nature of the Business: Higher Education
   Process or Change for which the permit is being requested: New Permit Replacing existing generator.

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Initial Construction Permit

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)
CO	0.56	0.06
NOx	0.53	0.05
SO2	0.14	0.01
VOC		
TSP	0.05	0.004
PM10		
PM2.5		
VHAP		

Net Changes In Emissions
(for permit Modifications or Technical Revisions)

	Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)	Estimated Total Tons Per Year
CO	+/-	+/-	
NOx	+/-	+/-	
SO2	+/-	+/-	
VOC	+/-	+/-	
TSP	+/-	+/-	
PM10	+/-	+/-	
PM2.5	+/-	+/-	
VHAP	+/-	+/-	

4. Maximum Operating Schedule: 200 hr/yr
   Normal Operating Schedule: 30 min/mo
5. Current Contact Information for Comments and Inquires:
   Name: Che Nyamboli
   Address: 1501 Tucker Ave
   Phone Number: (505) 277-2766
   E-Mail Address: cshu@unm.edu

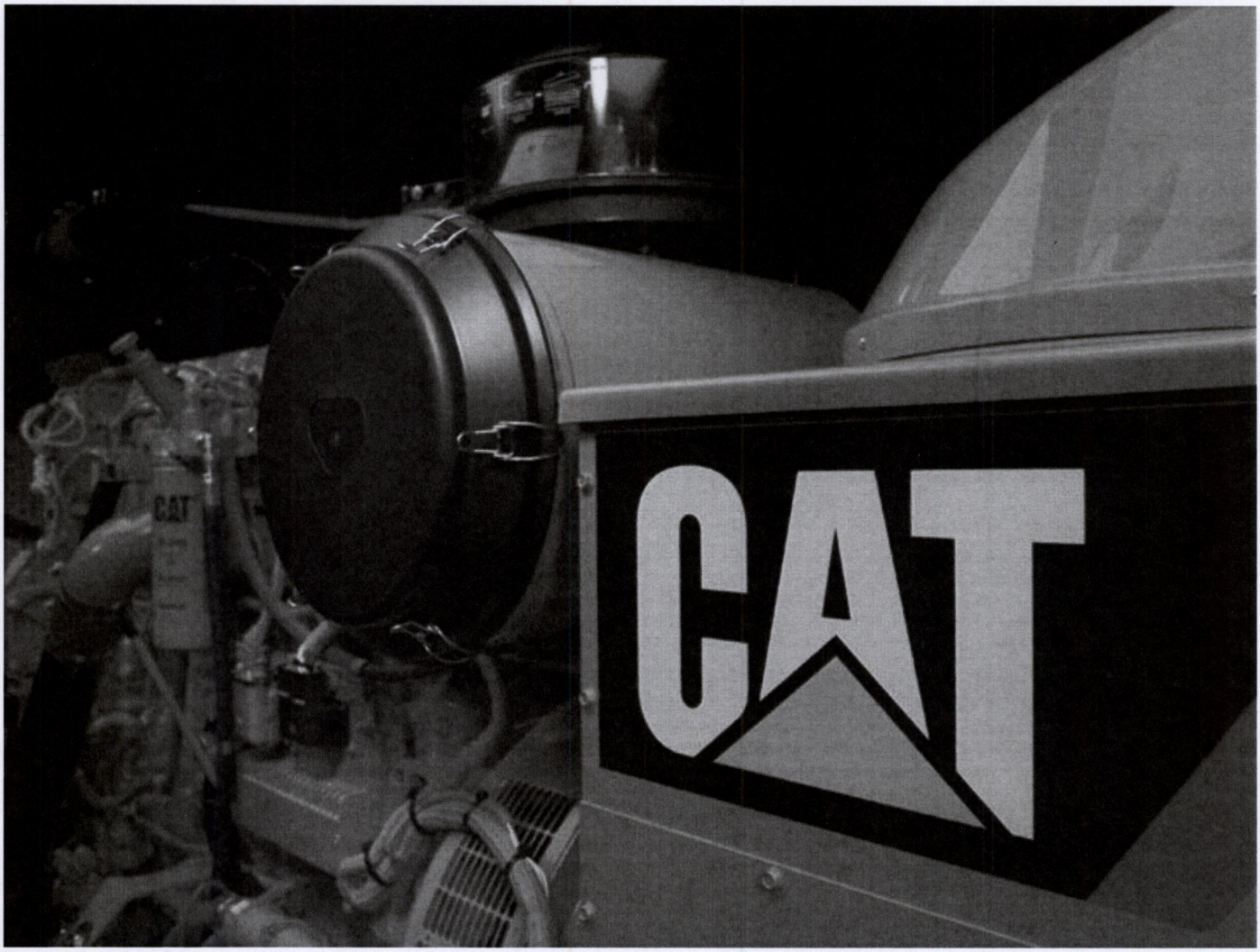
City of Albuquerque - Environmental Health Department - Air Quality Program - Stationary Source Permitting
Phone Number (505) 768-1972 E-Mail Address: aqd@cabq.gov

THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION

THE UNIVERSITY of NEW MEXICO

SUBMITTAL

Building 57 Economics



WAGNER POWER SYSTEMS

CAT

CAT D40-LC2 DIESEL GENSET
40ekW STANDBY
CAT CTG 100A ATS

CATERPILLAR®

WHERE THE WORLD TURNS FOR POWER

Wagner Power Systems
4000 Osuna Rd NE
Albuquerque, NM 87109
(505) 345-8411
Fax (505) 344-2582
http://wagnerequipment.cat.com

CATERPILLAR 40 KW 208Y/120V STANDBY GENERATOR SET CATERPILLAR 100A 208Y/120V ATS

ENGINEERING SUBMITTAL

PRIME ELECTRIC

July 29, 2016

PROJECT: Economics Building

EQUIPMENT: Caterpillar 40kw 208Y/120V Standby Generator Set
Caterpillar 100A 208Y/120V ATS

Jim Cumiford:
Inside Sales Engineer
Wagner Power Systems
Phone: 505-343-2774
E-mail: jcumiford@wagnerequipment.com

Rodney Sanchez
Sales Engineer
Wagner Power Systems
Phone: 505-343-2773
E-mail: rsanchez@wagnerequipment.com

Mona Upson:
Project Manager
Wagner Power Systems
Phone: 505-343-2765
Fax: 505-344-2582
E-mail: mupson@wagnerequipment.com

Index

Prime Electric - UNM - Building 57 Economics

Bill of Materials

Wagner Power Systems
4000 Osuna Road NE, Albuquerque, NM 87109
Ph: (505) 343-2774 Fx: (505) 344-2582 Mb: (505) 401-1560

CSQ#: 30154064.01.53
Date: 07/29/2016
Valid Until: 08/28/2016
Prepared by: James Cumiford

Prepared for: 00000

Project name: UNM Main Electrical Gear Replacement - Rebid (2)
Project location: UNM Campus, Albuquerque, NM
Notes/Comments: Wagner takes acception to specification sections 263213, 263623, Addendum 1, Addendum 2. We are offering standard Caterpillar engineered product that complies with the minimum functional intent of the specification providing the following value engineered solution.

*** BUILDING 53 - ZIMMERMAN LIBRARY ***

Description	Qty
Item A - Caterpillar® C4.4 PGBN D80-8 factory packaged generator set - diesel	1
EPA T3 emission certified for US stationary emergency only	
UL2200 listed package, NFPA 99/110 compliant	
ISO8528 rated 80 kW 100 kVA for emergency standby electrical service	
208Y/120 volt, 3-phase, 4-wire, 60 hertz	
UL508 EMCP 4.2 electronic modular control panel w/Modbus RTU communications	
NFPA 99/110 annunciation panel - remote (supplied loose)	
Emergency stop break glass station (supplied loose)	
Weather protective enclosure (std) (79 dBA @ 7 meter SPL) - white	
UL142 closed top double wall fuel tank base 209-gallons/24-hour capacity	
Spill containment, lockable fuel cap, level gauge, sender, vents, reliefs	
Generator LC3114D frame, PMG excitation, integrated voltage regulator	
UL489 circuit breaker 225AF 3-pole LSI 100% rated electronic trip	
UL1236 battery charger 10 amp multi rate with NFPA alarms	
24 vdc engine starting battery set, cables, mounting tray	
Engine jacket water heater 120 volt 1-phase	
Standard 2-year zero deductible standby warranty	
Standard on-site startup, resistive load test & owner training services	
Estimated ready to ship 7 - 10 weeks upon receipt of approved order	
Item B - Caterpillar® CTG series automatic transfer switch	1
225 amp, 3-pole, open transition (break-before-make), contactor type switching	
208Y/120 volt, 3-phase, 4-wire, 60 hertz	
MX150 digital microprocessor control	
Standard accessory group	
NEMA 1 indoor enclosure	
Standard 2-year zero deductible standby warranty	
Estimated ready to ship 3 - 5 weeks upon receipt of approved order	

Notes/comments/exceptions:

Standard factory ground shipping arranged, prepaid & added (freight not included)
All off loading, handling, installation and fuel by others
The generator set is factory powder coat painted white, the automatic transfer switch is ansi gray.

For questions concerning this document please contact:
James Cumiford (505) 401-1560 JCumiford@WagnerEquipment.com

Effective with sales to the first user on or after May 1, 2016

CATERPILLAR LIMITED WARRANTY

Industrial, Petroleum, Locomotive, and Agriculture Engine Products and Electric Power Generation Products

Worldwide

Caterpillar Inc. or any of its subsidiaries ("Caterpillar") warrants new and remanufactured engines and new and rebuild electric power generation products sold by it (including any products of other manufacturers packaged and sold by Caterpillar), to be free from defects in material and workmanship.

This warranty does not apply engines sold for use in on-highway vehicle or marine applications; engines in machines manufactured by or for Caterpillar; C175, 3500 and 3600 series engines used in locomotive applications; 3000 Family engines, C0.5 through C4.4 and ACERT™ (C6.6, C7, C7.1, C9, C9.3, C11, C13, C15, C18, C27, and C32) engines used in industrial, mobile agriculture and locomotive applications; or Cat® batteries. These products are covered by other Caterpillar warranties.

This warranty is subject to the following:

Warranty Period

- For industrial engines, engines in a petroleum applications or Petroleum Power Systems (excluding petroleum fire pump application), or engines in a Locomotive application, or Uninterruptible Power Supply (UPS) systems, the warranty period is 12 months after date of delivery to the first user.
- For engines used in petroleum fire pump and mobile agriculture applications the warranty period is 24 months after date of delivery to the first user.
- For controls only (EPIC), configurable and custom switchgear products, and automatic transfer switch products, the warranty period is 24 months after date of delivery to the first user.
- For new CG132, CG170 and CG260 series power generation products the warranty period is 24 months/16,000 hours, whichever comes first, after date of delivery to first user.
- For electric power generation products other than CG132, CG170 and CG260 series in prime or continuous applications the warranty period is 12 months. For standby applications the warranty period is 24 months/1000 hours. For emergency standby applications the warranty period is 24 months/400 hours. All terms begin after date of delivery to the first user.
- For Caterpillar rebuild electric power generation products the warranty period is 12 months, but not to exceed 24 months from shipment of rebuilt electric power generation product from Caterpillar.
- For all other applications the warranty period is 12 months after date of delivery to the first user.

Caterpillar Responsibilities

If a defect in material or workmanship is found during the warranty period, Caterpillar will, during normal working hours and at a place of business of a Cat dealer or other source approved by Caterpillar:

- Provide (at Caterpillar's choice) new, Remanufactured, or Caterpillar approved repaired parts or assembled components needed to correct the defect.

Note: New, remanufactured, or Caterpillar approved repaired parts or assembled components provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed as if such parts were original components of that product. Items replaced under this warranty become the property of Caterpillar.

- Replace lubricating oil, filters, coolant, and other service items made unusable by the defect.
- Provide reasonable and customary labor needed to correct the defect, including labor to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems, if required.

For new 3114, 3116, and 3126 engines and, new and Caterpillar rebuild electric power generation products (which includes the following: any new products of other manufacturers packaged and sold by Caterpillar)

- Provide travel labor, up to four hours round trip, if in the opinion of Caterpillar, the product cannot reasonably be transported to a place of business of a Cat dealer or other source approved by Caterpillar (travel labor in excess of four hours round trip, and any meals, mileage, lodging, etc. is the user's responsibility).

For all other products:

- Provide reasonable travel expenses for authorized mechanics, including meals, mileage, and lodging, when Caterpillar chooses to make the repair on-site.

User Responsibilities

The user is responsible for:

- Providing proof of the delivery date to the first user.
- Labor costs, except as stated under "Caterpillar Responsibilities," including costs beyond those required to disconnect the product from and reconnect the product to its attached equipment, mounting, and support systems.
- Travel or transporting costs, except as stated under "Caterpillar Responsibilities."
- Premium or overtime labor costs.
- Parts shipping charges in excess of those that are usual and customary.
- Local taxes, if applicable.
- Costs to investigate complaints, unless the problem is caused by a defect in Caterpillar material or workmanship.
- Giving timely notice of a warrantable failure and promptly making the product available for repair.
- Performance of the required maintenance (including use of proper fuel, oil, lubricants, and coolant) and items replaced due to normal wear and tear.
- Allowing Caterpillar access to all electronically stored data.

Limitations

Caterpillar is not responsible for:

- Failures resulting from any use or installation that Caterpillar judges improper.
- Failures resulting from attachments, accessory items, and parts not sold or approved by Caterpillar.
- Failures resulting from abuse, neglect, and/or improper repair.
- Failures resulting from user's delay in making the product available after being notified of a potential product problem.
- Failures resulting from unauthorized repairs or adjustments, and unauthorized fuel setting changes.
- Damage to parts, fixtures, housings, attachments, and accessory items that are not part of the engine, Cat Selective Catalytic Reduction System or electric power generation product (including any products of other manufacturers packaged and sold by Caterpillar).
- Repair of components sold by Caterpillar that is warranted directly to the user by their respective manufacturer. Depending on type of application, certain exclusions may apply. Consult your Cat dealer for more information.

(Continued on reverse side...)

This warranty covers every major component of the products. Claims under this warranty should be submitted to a place of business of a Cat dealer or other source approved by Caterpillar. For further information concerning either the location to submit claims or Caterpillar as the issuer of this warranty, write Caterpillar Inc., 100 N. E. Adams St., Peoria, IL USA 61629.

Caterpillar's obligations under this Limited Warranty are subject to, and shall not apply in contravention of, the laws, rules, regulations, directives, ordinances, orders, or statutes of the United States, or of any other applicable jurisdiction, without recourse or liability with respect to Caterpillar.

A) For products operating outside of Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

NEITHER THE FOREGOING EXPRESS WARRANTY NOR ANY OTHER WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED, IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT CATERPILLAR EMISSION-RELATED COMPONENTS WARRANTIES FOR NEW ENGINES, WHERE APPLICABLE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISION OF MATERIAL AND SERVICES, AS SPECIFIED HEREIN.

CATERPILLAR IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

For personal or family use engines or electric power generation products, operating in the USA, its territories and possessions, some states do not allow limitations on how long an implied warranty may last nor allow the exclusion or limitation of incidental or consequential damages. Therefore, the previously expressed exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary by jurisdiction. To find the location of the nearest Cat dealer or other authorized repair facility, call (800) 447-4986. If you have questions concerning this warranty or its applications, call or write:

In USA and Canada: Caterpillar Inc., Engine Division, P. O. Box 610, Mossville, IL 61552-0610, Attention: Customer Service Manager, Telephone (800) 447-4986. Outside the USA and Canada: Contact your Cat dealer.

B) For products operating in Australia, Fiji, Nauru, New Caledonia, New Zealand, Papua New Guinea, the Solomon Islands and Tahiti, the following is applicable:

THIS WARRANTY IS IN ADDITION TO WARRANTIES AND CONDITIONS IMPLIED BY STATUTE AND OTHER STATUTORY RIGHTS AND OBLIGATIONS THAT BY ANY APPLICABLE LAW CANNOT BE EXCLUDED, RESTRICTED OR MODIFIED ("MANDATORY RIGHTS"). ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED (BY STATUTE OR OTHERWISE), ARE EXCLUDED. WITHOUT LIMITING THE FOREGOING PROVISIONS OF THIS PARAGRAPH, WHERE A PRODUCT IS SUPPLIED FOR BUSINESS PURPOSES, THE CONSUMER GUARANTEES UNDER THE CONSUMER GUARANTEES ACT 1993 (NZ) WILL NOT APPLY.

NEITHER THIS WARRANTY NOR ANY OTHER CONDITION OR WARRANTY BY CATERPILLAR, EXPRESS OR IMPLIED (SUBJECT ONLY TO THE MANDATORY RIGHTS), IS APPLICABLE TO ANY ITEM CATERPILLAR SELLS THAT IS WARRANTED DIRECTLY TO THE USER BY ITS MANUFACTURER.

IF THE MANDATORY RIGHTS MAKE CATERPILLAR LIABLE IN CONNECTION WITH SERVICES OR GOODS, THEN TO THE EXTENT PERMITTED UNDER THE MANDATORY RIGHTS, THAT LIABILITY SHALL BE LIMITED AT CATERPILLAR'S OPTION TO (a) IN THE CASE OF SERVICES, THE SUPPLY OF THE SERVICES AGAIN OR THE PAYMENT OF THE COST OF HAVING THE SERVICES SUPPLIED AGAIN AND (b) IN THE CASE OF GOODS, THE REPAIR OR REPLACEMENT OF THE GOODS, THE SUPPLY OF EQUIVALENT GOODS, THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT GOODS.

CATERPILLAR EXCLUDES ALL LIABILITY FOR OR ARISING FROM ANY NEGLIGENCE ON ITS PART OR ON THE PART OF ANY OF ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN RESPECT OF THE MANUFACTURE OR SUPPLY OF GOODS OR THE PROVISION OF SERVICES RELATING TO THE GOODS.

CATERPILLAR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNLESS IMPOSED UNDER MANDATORY RIGHTS.

IF OTHERWISE APPLICABLE, THE VIENNA CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS IS EXCLUDED IN ITS ENTIRETY.

C) For products supplied in Australia:

IF THE PRODUCTS TO WHICH THIS WARRANTY APPLIES ARE:

- **I. PRODUCTS OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION; OR**
- **II. PRODUCTS THAT COST AUD 40,000 OR LESS,**

WHERE THOSE PRODUCTS WERE NOT ACQUIRED FOR THE PURPOSE OF RE-SUPPLY OR FOR THE PURPOSE OF USING THEM UP OR TRANSFORMING THEM IN THE COURSE OF PRODUCTION OR MANUFACTURE OR IN THE COURSE OF REPAIRING OTHER GOODS OR FIXTURES, THEN THIS SECTION C APPLIES.

THE FOLLOWING MANDATORY TEXT IS INCLUDED PURSUANT TO THE AUSTRALIAN CONSUMER LAW AND INCLUDES REFERENCES TO RIGHTS THE USER MAY HAVE AGAINST THE DIRECT SUPPLIER OF THE PRODUCTS: OUR GOODS COME WITH GUARANTEES THAT CANNOT BE EXCLUDED UNDER THE AUSTRALIAN CONSUMER LAW. YOU ARE ENTITLED TO A REPLACEMENT OR REFUND FOR A MAJOR FAILURE AND COMPENSATION FOR ANY OTHER REASONABLY FORESEEABLE LOSS OR DAMAGE. YOU ARE ALSO ENTITLED TO HAVE THE GOODS REPAIRED OR REPLACED IF THE GOODS FAIL TO BE OF ACCEPTABLE QUALITY AND THE FAILURE DOES NOT AMOUNT TO A MAJOR FAILURE. THE INCLUSION OF THIS TEXT DOES NOT CONSTITUTE ANY REPRESENTATION OR ACCEPTANCE BY CATERPILLAR OF LIABILITY TO THE USER OR ANY OTHER PERSON IN ADDITION TO THAT WHICH CATERPILLAR MAY HAVE UNDER THE AUSTRALIAN CONSUMER LAW.

TO THE EXTENT THE PRODUCTS FALL WITHIN THIS SECTION C BUT ARE NOT OF A KIND ORDINARILY ACQUIRED FOR PERSONAL, DOMESTIC OR HOUSEHOLD USE OR CONSUMPTION, CATERPILLAR LIMITS ITS LIABILITY TO THE EXTENT IT IS PERMITTED TO DO SO UNDER THE AUSTRALIAN CONSUMER LAW TO, AT ITS OPTION, THE REPAIR OR REPLACEMENT OF THE PRODUCTS, THE SUPPLY OF EQUIVALENT PRODUCTS, OR THE PAYMENT OF THE COST OF SUCH REPAIR OR REPLACEMENT OR THE ACQUISITION OF EQUIVALENT PRODUCTS.

THE WARRANTY SET OUT IN THIS DOCUMENT IS GIVEN BY CATERPILLAR INC. OR ANY OF ITS SUBSIDIARIES, 100 N. E. ADAMS ST, PEORIA, IL USA 61629, TELEPHONE 1 309 675 1000, THE USER IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH MAKING A CLAIM UNDER THE WARRANTY SET OUT IN THIS DOCUMENT, EXCEPT AS EXPRESSLY STATED OTHERWISE IN THIS DOCUMENT, AND THE USER IS REFERRED TO THE BALANCE OF THE DOCUMENT TERMS CONCERNING CLAIM PROCEDURES, CATERPILLAR RESPONSIBILITIES AND USER RESPONSIBILITIES.

TO THE EXTENT PERMISSIBLE BY LAW, THE TERMS SET OUT IN THE REMAINDER OF THIS WARRANTY DOCUMENT (INCLUDING SECTION B) CONTINUE TO APPLY TO PRODUCTS TO WHICH THIS SECTION C APPLIES.

SELF5707

C4.4 Generator Set

Electric Power

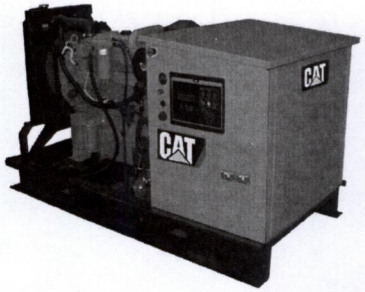


Image shown may not reflect actual configuration

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

Specifications

Generator Set Specifications	
Rating	40 ekW (50 kVA)
Voltage	208 Volts
Frequency	60 Hz
Speed	1800 rpm

Generator Set Configurations	
Emissions/Fuel Strategy	U.S. EPA Certified for Stationary Emergency Application (Meets nonroad U.S. EPA Tier 3 equivalent emission standards)

Engine Specifications		
Engine Model	C4.4 In-line 4, 4-cycle diesel	
Bore	105.0 mm	4.13 in
Displacement	4.4 L	268.5 in^3
Stroke	127.0 mm	5.0 in
Compression Ratio	18.2:1	
Aspiration	Turbocharged	
Governor Type	Electronic (adjustable)	
Fuel System	Common Rail	

Package Dimensions*		
Length	1972 mm	77.6 in
Width	1000 mm	39.4 in
Height	1175 mm	46.3 in
Weight†	861 kg	1898 lb

*Note: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

†Weight includes: Oversize generator, skid base, circuit breaker, oil, and coolant.

Benefits & Features

Cat® Diesel Engine

- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

Generator

- Matched to the performance and output characteristics of Cat engines
- Industry-leading mechanical and electrical design
- Industry-leading motor starting capabilities
- High efficiency

Cat EMCP Control Panel

The EMCP controller features the reliability and durability you have come to expect from your Cat equipment. EMCP 4 is a scalable control platform designed to ensure reliable generator set operation, providing extensive information about power output and engine operation. EMCP 4 systems can be further customized to meet your needs through programming and expansion modules.

Design Criteria

- The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response
- Cooling system designed to operate in 50°C/122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200/CSA – Optional

- UL 2200 Listed
- CSA Certified

Certain restrictions may apply. Consult with your Cat dealer.

Single-Source Supplier

Fully prototype tested with certified torsional vibration analysis.

Worldwide Product Support

Cat dealers provide extensive post-sale support including maintenance and repair agreements. Cat dealers have over 1,800 dealer branch stores operating in 200 countries. The Cat S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products.

Standard Equipment

Air Inlet

- Dry replaceable paper element type with restriction indicator

Cooling

- Radiator and cooling fan complete with protective guards
- Standard ambient temperatures up to 50°C (122°F)

Exhaust

- Exhaust flange outlet

Fuel

- Primary and secondary fuel filters
- Fuel priming pump
- Flexible fuel lines

Generator

- Matched to the performance and output characteristics of Cat engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- IP23 protection
- Integrated Voltage Regulation

Governor

- Electronic governor – ADEM™ A4

Control Panels

- EMCP 4.2 Series generator set controller

Mounting

- Rubber vibration isolators

Starting/Charging

- 12 volt starting motor
- Batteries with rack and cables

General

- Paint – Caterpillar Yellow except rails and radiators gloss black

Optional Equipment

Generator

- Excitation: [ ] Permanent Magnet Excited (PM) [ ] Internally Excited (IE)
- Oversize and premium generators

Starting/Charging

- Battery charger – UL 10 amp
- Battery disconnect switch
- Battery removal (does not remove rack and cables)
- Jacket water heater

General

- UL 2200
- CSA Certification
- Enclosures: sound attenuated, weather protective
- Integral or sub-base dual wall UL Listed fuel tanks
- Automatic transfer switches (ATS)

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Application (Meets nonroad U.S. EPA Tier 3 equivalent emission standards)

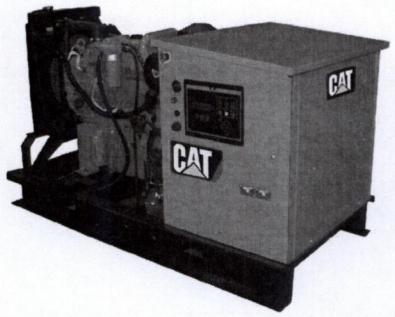


Image shown may not reflect actual configuration

D40-2LC
40 ekW/ 50 kVA 60Hz/
1800 rpm/ 208V

Package Performance	
Generator Set Power Rating with Fan @ 0.8 Power Factor	40 ekW
Generator Set Power Rating	50 kVA

Fuel Consumption		
100% Load With Fan	13.9 L/hr	3.7 gal/hr
75% Load With Fan	10.8 L/hr	2.9 gal/hr
50% Load With Fan	8.1 L/hr	2.1 gal/hr

Cooling System[1]		
Engine Coolant Capacity	7.0 L	1.8 gal
Radiator Coolant Capacity	9.5 L	2.5 gal
Engine Coolant Capacity with Radiator/Exp Tank	16.5 L	4.4 gal
Air Flow Restriction (System)	0.12 kPa	0.48 in. water

Inlet Air		
Combustion Air Inlet Flow Rate	5.3 m^3/min	187.2 cfm

Exhaust System		
Exhaust Stack Gas Temperature	571°C	1060°F
Exhaust Gas Flow Rate	13.7 m^3/min	483.8 cfm
Exhaust System Backpressure (maximum allowable)	15.0 kPa	60.2 in. water

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Application (Meets nonroad U.S. EPA Tier 3 equivalent emission standards)

Heat Rejection		
Heat Rejection to Coolant (total)	46.1 kW	2622 Btu/min
Heat Rejection to Exhaust (total)	66.9 kW	3805 Btu/min
Heat Rejection to Atmosphere from Engine	14.9 kW	847.3 Btu/min
Heat Rejection to Atmosphere from Generator	4.7 kW	267.3 Btu/min

Alternator[2]		
Motor Starting Capability @ 30% Voltage Dip	105 skVA	
Frame	LC1514J	
Temperature Rise	130°C	234°F
Excitation	Self Excited	

Lube System		
Sump Refill with Filter	8.4 L	2.2 gal

Emissions (Nominal)[3]	
NOx + HC	4.42 g/kW-hr
CO	1.02 g/kW-hr
PM	0.26 g/kW-hr

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to the existing restriction from the factory.

[2] Generator temperature rise is based on a 40°C (104°F) ambient per NEMA MG1-32.

[3] The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% Prime load.

ELECTRIC POWER – Technical Spec Sheet
STANDARD

C4.4

40 ekW/ 50 kVA/ 60Hz/ 1800 rpm/ 208V/ 0.8 Power Factor

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency Application (Meets nonroad U.S. EPA Tier 3 equivalent emission standards)

DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:
AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC,IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

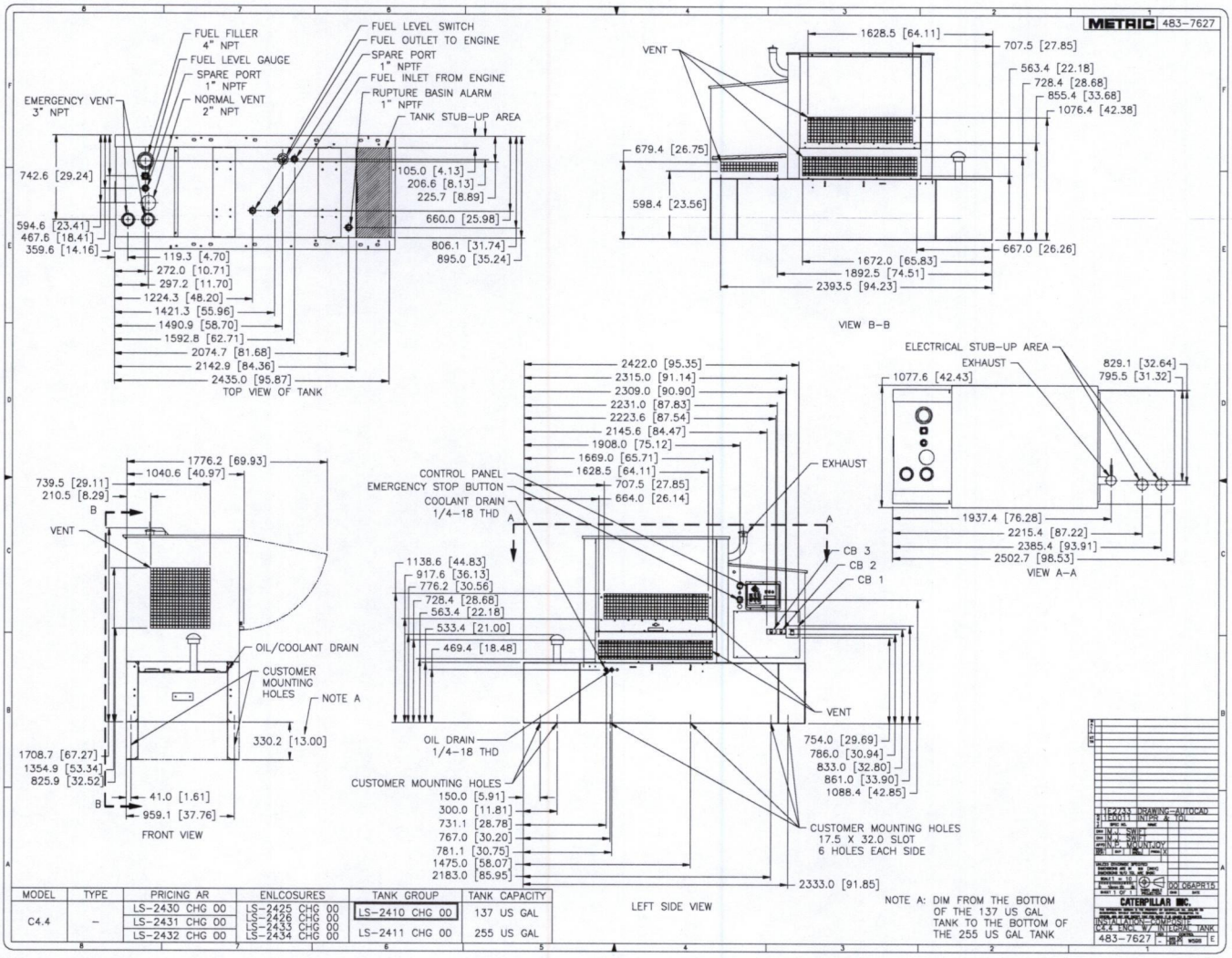
Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil to specification EPA 2D 89.330-96 with a density of 0.845 – 0.850 kg/L (7.052 – 7.094 lbs/U.S. gal.) @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).

Additional ratings may be available for specific customer requirements, contact your Cat representative for details.

Performance No.: P3454C-00
Feature Code: NAC147P
Generator Arrangement: 4676043
Date: 04/16/2015
Source Country: U.S.

LEHE0872-00



MODEL	TYPE	PRICING AR	ENCLOSURES	TANK GROUP	TANK CAPACITY
C4.4	–	LS-2430 CHG 00	LS-2425 CHG 00	LS-2410 CHG 00	137 US GAL
		LS-2431 CHG 00	LS-2426 CHG 00		
		LS-2432 CHG 00	LS-2433 CHG 00	LS-2411 CHG 00	255 US GAL
			LS-2434 CHG 00		

GENERATOR DATA

JULY 28, 2016

For Help Desk Phone Numbers Click here

Selected Model

Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Spec Information

Generator Specification

Frame: LC1514L **Type:** LC	**No. of Bearings:** 1
Winding Type: RANDOM WOUND	**Flywheel:** 11.5
Connection: PARALLEL STAR	**Housing:** 3
Phases: 3	**No. of Leads:** 12
Poles: 4	**Wires per Lead:** 1
Sync Speed: 1800	**Generator Pitch:** 0.6667

Generator Efficiency

Per Unit Load	kW	Efficiency %
0.25	10.0	90.1
0.5	20.0	91.6
0.75	30.0	90.9
1.0	40.0	89.6

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.0926	0.0801
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1307	0.1131
TRANSIENT - SATURATED X'_d	0.1851	0.1602
SYNCHRONOUS - DIRECT AXIS X_d	3.4269	2.9652
SYNCHRONOUS - QUADRATURE AXIS X_q	1.7134	1.4826
NEGATIVE SEQUENCE X_2	0.1116	0.0966
ZERO SEQUENCE X_0	0.0024	0.0021

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	0.9255
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.0500
OPEN CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_{d0}	0.0100
SHORT CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_d	0.0050
OPEN CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0655
SHORT CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_q	0.0050
EXCITER TIME CONSTANT T_e	0.0200
ARMATURE SHORT CIRCUIT T_a	0.0075

Short Circuit Ratio: 0.32	Stator Resistance = 0.0684 Ohms	Field Resistance = 0.8382 Ohms

Voltage Regulation

Voltage level adustment: +/-	5.0%
Voltage regulation, steady state: +/-	0.5%
Voltage regulation with 3% speed change: +/-	1.0%
Waveform deviation line - line, no load: less than	2.0%
Telephone influence factor: less than	50

Generator Excitation

	No Load	Full Load, (rated) pf	
		Series	Parallel
Excitation voltage:	7.46 Volts	36.68 Volts	Volts
Excitation current	0.42 Amps	1.71 Amps	Amps

Selected Model

Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Generator Mechanical Information

Center of Gravity

Dimension X	-420.0 mm	-16.5 IN.
Dimension Y	444.0 mm	17.5 IN.
Dimension Z	588.0 mm	23.1 IN.

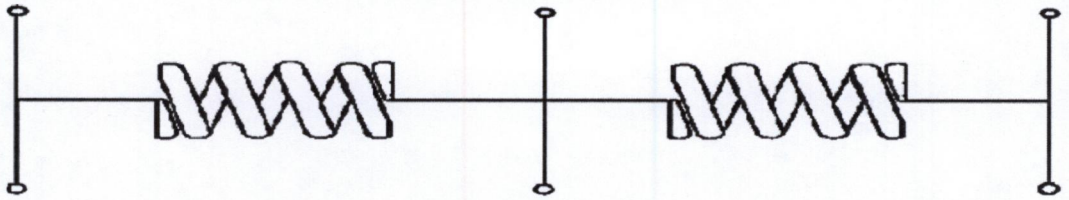
- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 171 kg * Rotor WT = 67 kg * Stator WT = 104 kg
377 LB 148 LB 229 LB

Rotor Balance = 0.0508 mm deflection PTP

Overspeed Capacity = 125% of synchronous speed

Generator Torsional Data



J1 = Coupling and Fan **J2 = Rotor** **J3 = Exciter End**

TOTAL J = J1 + J2 + J3

K1 = Shaft Stiffness between J1 + J2 (Diameter 1)

K2 = Shaft Stiffness between J2 + J3 (Diameter 2)

J1	K1	Min Shaft Dia 1	J2	K2	Min Shaft Dia 2	J3
0.4 LB IN. s^2	3.8 MLB IN./rad	2.4 IN.	2.7 LB IN. s^2	4.4 MLB IN./rad	2.4 IN.	0.2 LB IN. s^2
0.044 N m s^2	0.433 MN m/rad	60.0 mm	0.306 N m s^2	0.502 MN m/rad	60.0 mm	0.022 N m s^2

Total J

3.3 LB IN. s^2

0.372 N m s^2

Selected Model

Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Generator Cooling Requirements - Temperature - Insulation Data

Cooling Requirements:		**Temperature Data: (Ambient 40 ^{0}C)**	
Heat Dissipated: 4.6 kW		**Stator Rise:**	130.0 ^{0}C
Air Flow:	7.8 m^3/min	**Rotor Rise:**	130.0 ^{0}C

Insulation Class: H

Insulation Reg. as shipped: 100.0 MΩ minimum at 40 ^{0}C

Thermal Limits of Generator

Frequency:	60 Hz
Line to Line Voltage:	208 Volts
B BR 80/40	40.0 kVA
F BR -105/40	45.5 kVA
H BR - 125/40	50.0 kVA
F PR - 130/40	50.0 kVA
H PR - 150/40	53.0 kVA
H PR27 - 163/27	55.0 kVA

Selected Model

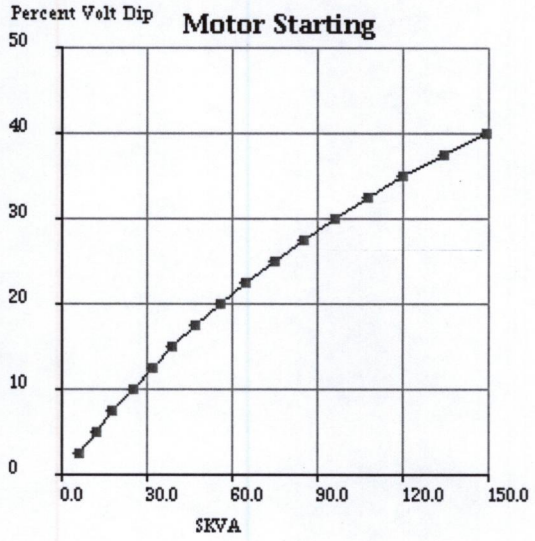
Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Starting Capability & Current Decrement

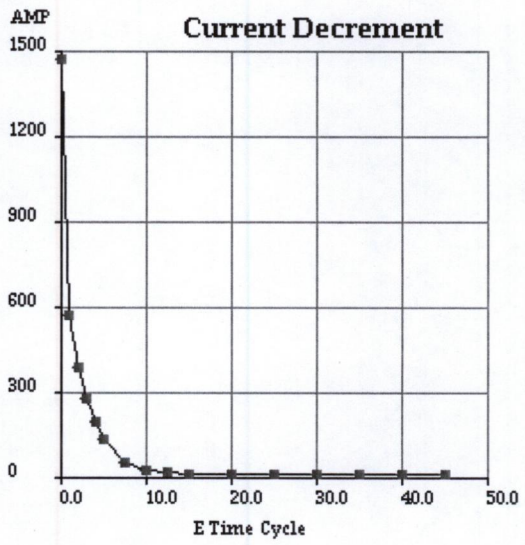
Motor Starting Capability (0.6 pf)

SKVA	Percent Volt Dip
6	2.5
12	5.0
18	7.5
25	10.0
32	12.5
39	15.0
47	17.5
56	20.0
65	22.5
75	25.0
85	27.5
96	30.0
108	32.5
120	35.0
134	37.5
149	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	1,472
1.0	571
2.0	392
3.0	279
4.0	196
5.0	137
7.5	55
10.0	29
12.5	21
15.0	17
20.0	15
25.0	15
30.0	15
35.0	15
40.0	15
45.0	15



Instantaneous 3 Phase Fault Current: 1472 Amps **Instantaneous Line - Line Fault Current:** 1156 Amps
Instantaneous Line - Neutral Fault Current: 1978 Amps

Selected Model

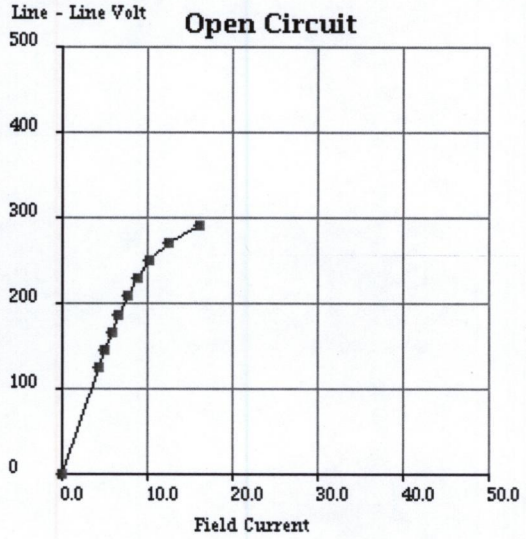
Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Generator Output Characteristic Curves

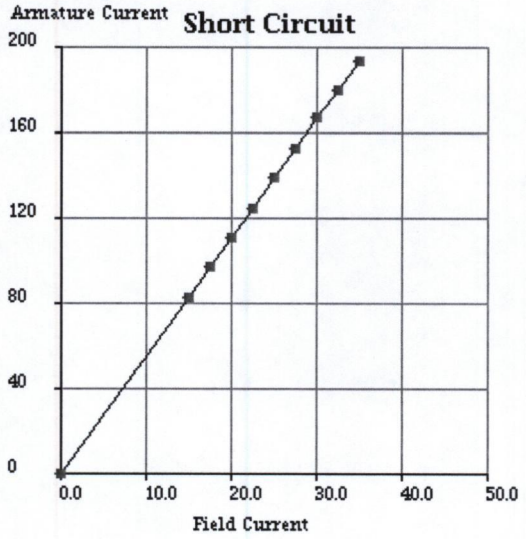
Open Circuit Curve

Field Current	Line - Line Volt
0.0	0
4.4	125
5.1	146
5.9	166
6.7	187
7.7	208
8.8	229
10.3	250
12.5	270
16.2	291



Short Circuit Curve

Field Current	Armature Current
0.0	0
14.9	83
17.4	97
19.9	111
22.4	125
24.9	139
27.4	153
29.9	167
32.4	180
34.9	194



Selected Model

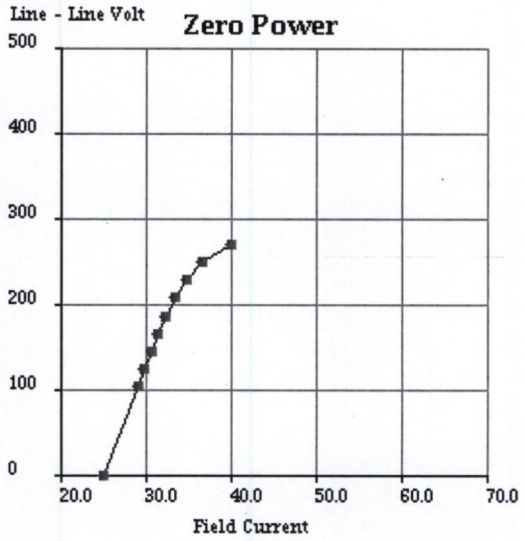
Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Generator Output Characteristic Curves

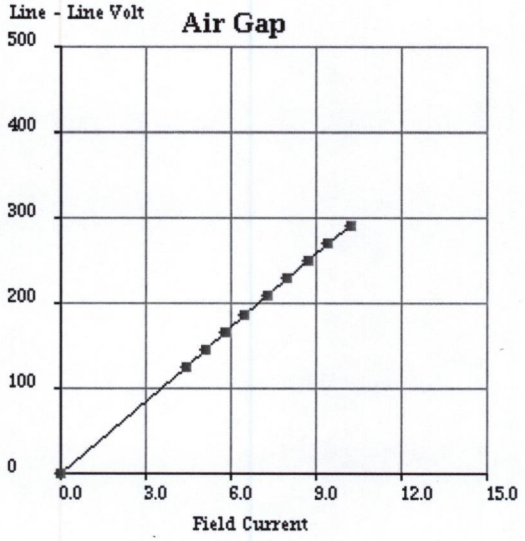
Zero Power Factor Curve

Field Current	Line - Line Volt
24.9	0
29.1	104
29.8	125
30.6	146
31.4	166
32.3	187
33.4	208
34.7	229
36.7	250
40.0	270



Air Gap Curve

Field Current	Line - Line Volt
0.0	0
4.4	125
5.1	146
5.8	166
6.5	187
7.3	208
8.0	229
8.7	250
9.4	270
10.2	291



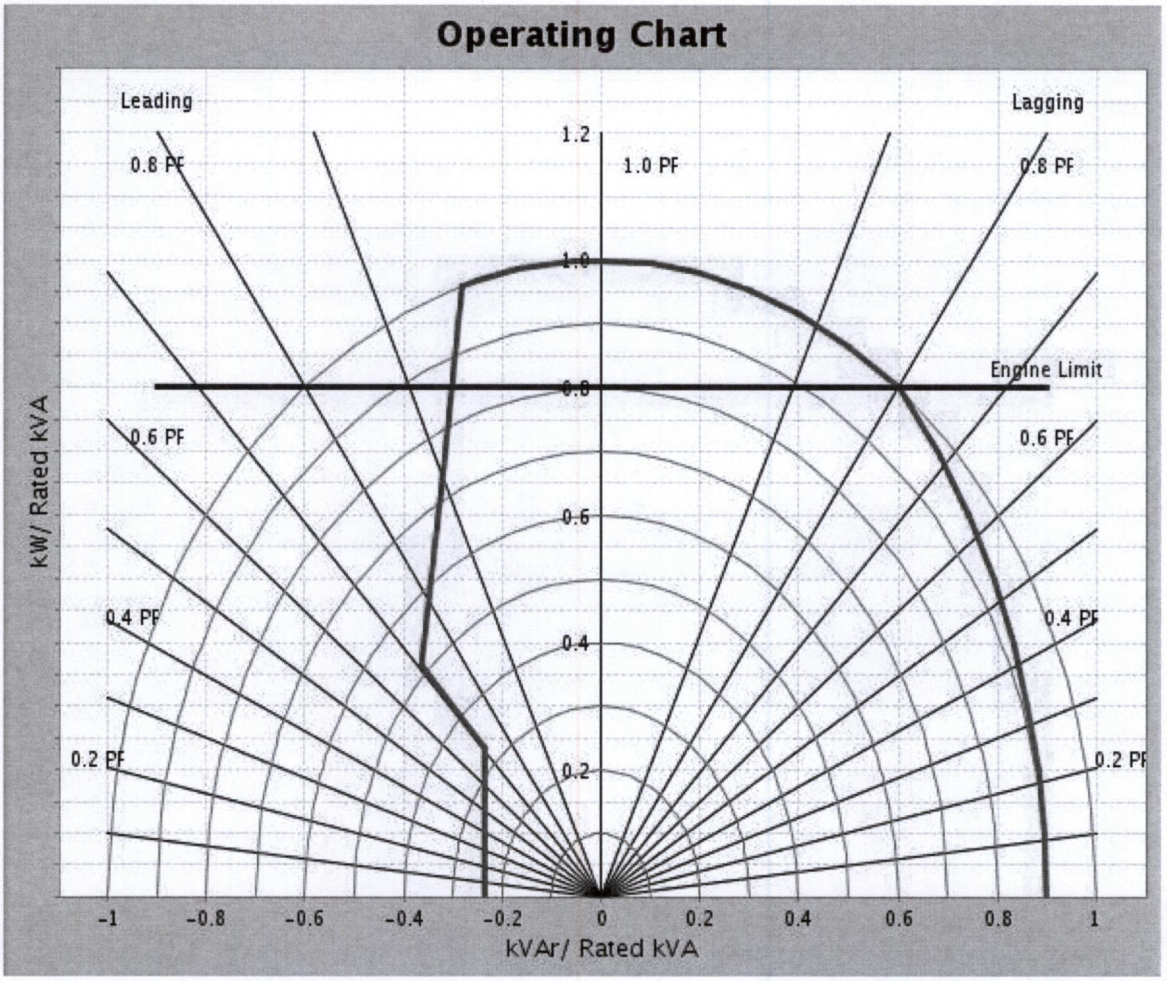
Selected Model

Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

Reactive Capability Curve

Click to view Chart


Operating Chart
Leading
Lagging
0.8 PF
1.0 PF
0.8 PF
1.2
1.0
0.8
Engine Limit
0.6 PF
0.6 PF
0.6
0.4 PF
0.4 PF
0.4
0.2 PF
0.2 PF
0.2
kW/ Rated kVA
-1
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
kVAr/ Rated kVA

Selected Model

Engine: C4.4	**Generator Frame:** LC1514L	**Genset Rating (kW):** 40.0	**Line Voltage:** 208
Fuel: Diesel	**Generator Arrangement:** 4676044	**Genset Rating (kVA):** 50.0	**Phase Voltage:** 120
Frequency: 60	**Excitation Type:** Self Excited	**Pwr. Factor:** 0.8	**Rated Current:** 138.8
Duty: STANDBY	**Connection:** PARALLEL STAR	**Application:** EPG	**Status:** Current

Version: 41764 /41185 /42214 /794

General Information

GENERATOR INFORMATION (DM7900)

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1. Motor Starting
Motor starting curves are obtained in accordance with IEC60034, and are displayed at 0.6 power factor.

2. Voltage Dip
Prediction of the generator synchronous voltage dip can be made by consulting the plot for the voltage dip value that corresponds to the desired motor starting kVA value.

3. Definitions
A) Generator Keys
Frame: abbreviation of generator frame size
Freq: frequency in hertz.
PP/SB: prime/standby duty respectively
Volts: line - line terminal voltage
kW: rating in electrical kilo watts
Model: engine sales model

B) Generator Temperature Rise
The indicated temperature rises are the IEC/NEMA limits for standby or prime power applications. The quoted rise figures are maximum limits only and are not necessarily indicative of the actual temperature rise of a given machine winding.

C) Centre of Gravity
The specified centre of gravity is for the generator only. For single bearing, and two bearing close coupled generators, the center of gravity is measured from the generator/engine flywheel-housing interface and from the centreline of the rotor Shaft.

For two bearing, standalone generators, the center of gravity is measured from the end of the rotor shaft and from the centerline of the rotor shaft.

D) Generator Current Decrement Curves
The generator current decrement curve indicates the generator armature current arising from a symmetrical three-phase fault at the generator terminals. Generators equipped with AREP or PMG excitation systems will sustain 300% of rated armature current for 10 seconds.

E) Generator Efficiency Curves
The efficiency curve is displayed for the generator only under the given conditions of rating, voltage, frequency and power factor. This is not the overall generating set efficiency curve.

CATERPILLAR®

GEN SET PACKAGE PERFORMANCE DATA [P3454C]

JULY 28, 2016

For Help Desk Phone Numbers Click here

Performance Number: P3454C

Change Level: 00

Sales Model: C4.4 DIT	**Combustion:** DI	**Aspr:** T	
Engine Power: 50 W/F EKW 69 HP	**Speed:** 1,800 RPM	**After Cooler:**	
Manifold Type:	**Governor Type:** Adem	**After Cooler Temp(F):** 32	
Turbo Quantity:	**Engine App:** GP	**Turbo Arrangement:**	
Hertz: 60	**Application Type:** PACKAGE-DIE	**Engine Rating:** PGS	**Strategy:**
Rating Type: STANDBY	**Certification:** EPA TIER 3 -		

General Performance Data 1

GEN W/F EKW	PERCENT LOAD	ENGINE POWER BHP	ENGINE BMEP PSI	FUEL BSFC LB/BHP-HR	FUEL RATE GPH	INTAKE MFLD P IN-HG	INTAKE AIR FLOW CFM	EXH STACK TEMP DEG F	EXH GAS FLOW CFM
40	80	69	112.55	0.39	3.86	28.84	185.4	903.2	418.13

EMISSIONS DATA

EPA TIER 3 - ********** J1

No notes were found for this certification...

REFERENCE EXHAUST STACK DIAMETER	0 IN
WET EXHAUST MASS	0.0 LB/HR
WET EXHAUST FLOW (-- STACK TEMP)	--
WET EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	--
DRY EXHAUST FLOW RATE (32 DEG F AND 29.98 IN HG)	--
FUEL FLOW RATE	--

RATED SPEED "Potential site variation"

TOTAL NOX (AS NO2) LB/HR	PERCENT LOAD	TOTAL CO LB/HR	TOTAL HC LB/HR	PART MATTER LB/HR
0.01	0	.0000	.0000	.0000

The powers listed above and all the Powers displayed are Corrected Powers

Identification Reference and Notes

Engine Arrangement:		**Lube Oil Press @ Rated Spd(PSI):**	0.0
Effective Serial No:		**Piston Speed @ Rated Eng SPD(FT/Min):**	--
Primary Engine Test Spec:		**Max Operating Altitude(FT):**	0.0
Performance Parm Ref:		**PEEC Elect Control Module Ref**	
Performance Data Ref:	P3454C	**PEEC Personality Cont Mod Ref**	
Aux Coolant Pump Perf Ref:			
Cooling System Perf Ref:		**Turbocharger Model**	
Certification Ref:	EPA TIER 3	**Fuel Injector**	
Certification Year:		**Timing-Static (DEG):**	--
Compression Ratio:	0.0	**Timing-Static Advance (DEG):**	--
Combustion System:	DI	**Timing-Static (MM):**	--
Aftercooler Temperature (F):	32	**Unit Injector Timing (MM):**	--
Crankcase Blowby Rate(CFH):	--	**Torque Rise (percent)**	0.0
Fuel Rate (Rated RPM) No Load(Gal/HR):	--	**Peak Torque Speed RPM**	1800
Lube Oil Press @ Low Idle Spd(PSI):	38.4	**Peak Torque (LB.FT):**	199.9

Reference Number: P3454C	EPA TIER 3 J1
Parameters Reference:	J1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2016 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Perkins Engines Co Ltd**
(U.S. Manufacturer or Importer)

Certificate Number: **GPKXL04.4NH1-009**

Effective Date: 10/02/2015

Expiration Date: 12/31/2016

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 10/02/2015

Revision Date: N/A

Model Year: 2016
Manufacturer Type: Original Engine Manufacturer
Engine Family: GPKXL04.4NH1

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 56<=kW<75
Fuel Type: Diesel, Non-Standard Fuel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Electronic Control, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

1915 Roma Ave NE
Albuquerque, NM 87106

At this location

Economics Department
University Department · Roma Ave NE

Google Maps

1915 Roma Ave NE

Economics Building

Imagery ©2016 Google, Map data ©2016 Google 100 ft